

Applicant : Robert Andrews et al.

Serial No. : 09/777,915

Filed : February 5, 2001

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Attorney's Docket No.: 08261-017001

REMARKS

The invention, as claimed in amended claim 1, is directed to cardiac laser surgery apparatus including a sealed, CO₂ slab laser that provides pulses of adjustable length in time so as to provide energy of between 8 and 80 Joules per pulse, and a laser delivery system for delivering the laser pulses from the laser to a patient's heart. The slab laser has two narrowly spaced electrodes having opposed planar surfaces and a rectangular discharge region defined between said opposed planar surfaces of said two narrowly spaced electrodes. As noted in the specification at page 5, the use of a CO₂ slab laser for cardiac surgery apparatus permits one to produce high energy from a small package that is sealed off and quiet, and is of low cost. There is no need to provide a supply of continuous gas flow as in some other types of CO₂ lasers.

Claim 1 stands rejected as obvious in view of Brauer U.S. Patent No. 5,951,543, cited for disclosure of a CO₂ laser used in cardiac surgery, and Eisel U.S. Patent No. 5,412,681, cited for disclosure of a CO₂ slab laser with narrowly spaced electrodes and a rectangular discharge region therebetween. Brauer was said to disclose pulses with energy of between 8 and 80 Joules per pulse at Figs. 5-6; col. 10, lines 15-67; col. 11, lines 34-63. In the office action it was said that it would have been obvious to use Eisel's slab laser with narrowly spaced electrodes in Brauer so as to "increase the power and efficiency ... during laser surgery of the patient's heart."

Brauer distinguished the high power CO₂ laser of the prior art (col. 3, line 35) from the "low power CO₂ laser" of his invention. (Col. 4, line 27; col. 4, line 42; col. 12, lines 21-23). Thus, contrary to the statement in the office action, it would not have been obvious to "increase the power" in the Brauer system, as this is directly opposite to the entire thrust of Brauer.

Moreover, contrary to the statement in the office action, Figs. 5-6; col. 10, lines 15-67; and col. 11, lines 34-63 of Bauer do not disclose pulses with energy of between 8 and 80 Joules per pulse. Figs. 5 and 6 depict the components of the delivery system and a patient's heart. The passages at col. 10, lines 15-67; col. 11, lines 34-63 describe low power, beam diameter and power density, number of channels, channel diameter, but do not describe energy per pulse.

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The cited Brauer and Eisel references, taken alone or in combination, nowhere suggest the subject matter of claim 1, and claim 1 is allowable under 35 USC 103(a) over these references. The remaining claims depend on claim 1 and are allowable with it.

Enclosed is a \$770 check for Request for Continued Examination and a \$475 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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